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10/505,348

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Bokke Johannes Feenstra

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EXAMINER

CALEY, MICHAEL H

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/505,348

Applicant(s)

FEENSTRA ET AL.

Examiner

Michael H. Caley

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2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08192004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

### ***Claim Objections***

Claims 1 and 13 are objected to because of the following informalities:

In line 3 of both of claims 1 and 13, "the substrates" does not have a proper antecedent.

Both of claims 1 and 13 lack a period.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1-10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson (U.S. Patent No. 4,886,343).**

Regarding claim 1, Johnson discloses a subtractive display device having picture elements having sub-pixels (Figure 7; Column 5 line 66 – Column 6 line 11), each sub-pixel having, viewed during operation in a direction normal to the substrates, at least two independently switchable electro-optical components (Figure 10 elements 12 and 16), the device further comprising a color filter (Figure 10 element 15) in which each sub-pixel color filter part absorbs one of a part of the optical spectral range (Column 7 lines 8-9), the parts of the optical spectral range being substantially non-overlapping, the device comprising means for controlling absorption or reflection of remaining parts of the spectral range in each sub-pixel by the at least two switchable electro-optical components (Figure 11), the non-overlapping ranges together covering the optical spectral range (Figures 8a, 8b, and 8c).

Regarding claim 2, Johnson discloses the two switchable electro-optical components in each sub-pixel as switchable between a substantially transparent or translucent state and a state absorbing or reflecting a first part of the remainder of the spectral range (Column 6 lines 40-43; Figure 11).

Regarding claims 3-5, Johnson discloses a further switchable electro-optical component in each sub-pixel as switchable between a substantially transparent or translucent state and a state absorbing or reflecting the remainder or a part of the remainder of the spectral range (Figure 11).

Regarding claim 6, Johnson discloses cyan, magenta and yellow color filter parts (Column 7 lines 8-9, Figure 11), at least one of two switchable electro-optical components in each sub-pixel as being switchable between a substantially transparent or translucent state and one of the colors cyan magenta and yellow (Figure 11, output color).

Regarding claims 7 and 8, Johnson discloses the other of the two switchable components as switchable to one of the colors cyan, magenta and yellow, or red, green and blue (Figure 11).

Regarding claim 9, Johnson discloses a sub-pixel as corresponding to a defined space (Figure 10).

Regarding claim 10, Johnson discloses each sub-pixel having between a first support plate and a second support plate (Figure 10 elements 13, 14, and 15), at least two switchable electro-optical layers, the device comprising means for creating at least two different states in each layer, the layers in a sub-pixel switching between a substantially transparent or translucent state and two different colors (Column 7 lines 1-49).

Regarding claim 13, Johnson discloses  $n$  independently switchable electro-optical components (Figure 10 element 11) and means for controlling the absorption or reflection of remaining parts of the spectral range in each subpixel by  $(n-1)$  switchable electro-optical components (Column 7 lines 17-23).

**Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwauchi et al. (U.S. Patent No. 5,841,492 "Iwauchi").**

Regarding claim 1, Iwauchi discloses a subtractive display device having picture elements having sub-pixels (Figure 1; elements 4a, 4b, 5a and 5b), each sub-pixel having, viewed during operation in a direction normal to the substrates, at least two independently switchable electro-optical components (Figure 1 elements 4 and 5), the device further comprising a color filter (Figure 1 element 6) in which each sub-pixel color filter part absorbs one of a part of the optical spectral range (Column 6 lines 39-54), the parts of the optical spectral range being substantially non-overlapping, the device comprising means for controlling absorption or reflection of remaining parts of the spectral range in each sub-pixel by the at least two switchable electro-optical components (Column 6 lines 55-67), the non-overlapping ranges together covering the optical spectral range (Column 6 lines 17-29).

Regarding claim 2, Iwauchi discloses the two switchable electro-optical components in each sub-pixel as switchable between a substantially transparent or translucent state and a state absorbing or reflecting a first part of the remainder of the spectral range (Column 6 lines 55-67).

Regarding claims 3-5, Iwauchi discloses a further switchable electro-optical component in each sub-pixel as switchable between a substantially transparent or translucent state and a state absorbing or reflecting the remainder or a part of the remainder of the spectral range (Column 6 lines 55-67).

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Regarding claim 6, Iwauchi discloses cyan, magenta and yellow color filter parts (Column 6 lines 39-54), at least one of two switchable electro-optical components in each sub-pixel as being switchable between a substantially transparent or translucent state and one of the colors cyan magenta and yellow (Column 6 lines 31-44).

Regarding claims 7 and 8, Iwauchi discloses the other of the two switchable components as switchable to one of the colors cyan, magenta and yellow, or red, green and blue (Column 6 lines 31-44).

Regarding claim 9, Iwauchi discloses a sub-pixel as corresponding to a defined space (Figure 1).

Regarding claim 10, Iwauchi discloses each sub-pixel having between a first support plate and a second support plate (Figure 1 elements 1, 2, and 3), at least two switchable electro-optical layers, the device comprising means for creating at least two different states in each layer, the layers in a sub-pixel switching between a substantially transparent or translucent state and two different colors (Column 6 lines 55-67).

Regarding claim 12, Iwauchi discloses a reflector at the side of one of the substrates (Figure 9 element 64).

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Regarding claim 13, Iwauchi discloses n independently switchable electro-optical components and means for controlling the absorption or reflection of remaining parts of the spectral range in each subpixel by (n-1) switchable electro-optical components (Figure 1 elements 7, 8, 9 and 10).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwauchi in view of Liang et al. (U.S. Patent Application Publication No. 2002/0126249 "Liang").**

Iwauchi fails to disclose the display device as containing two immiscible fluids as proposed. Liang, however, teaches two first fluids of different colors (Page 3 [0039]) and second



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fluids immiscible with the first fluids (Page 5 [0059]) within a space between the first support plate and the second support plate (Figure 8), the second fluid being electroconductive or polar (Pages 4 and [0054]) in which a picture element corresponds to a defined space having a wall part (Figure 8 element 80) dividing the space into at least three sub-picture elements, in the first state each of the first fluids adjoining separate support plates within each sub-picture element (Figure 8 element 85).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the electro-optical components disclosed by Johnson to be formed of the cell structure taught by Liang. Liang teaches liquid crystal with guest-dyes formed in microcups as advantageous to reduce the operation voltage while improving contrast (Page 1 [0009]-[0012]).

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael H. Caley

June 8, 2006



mhc

  
ANDREW SCHECHTER  
PRIMARY EXAMINER